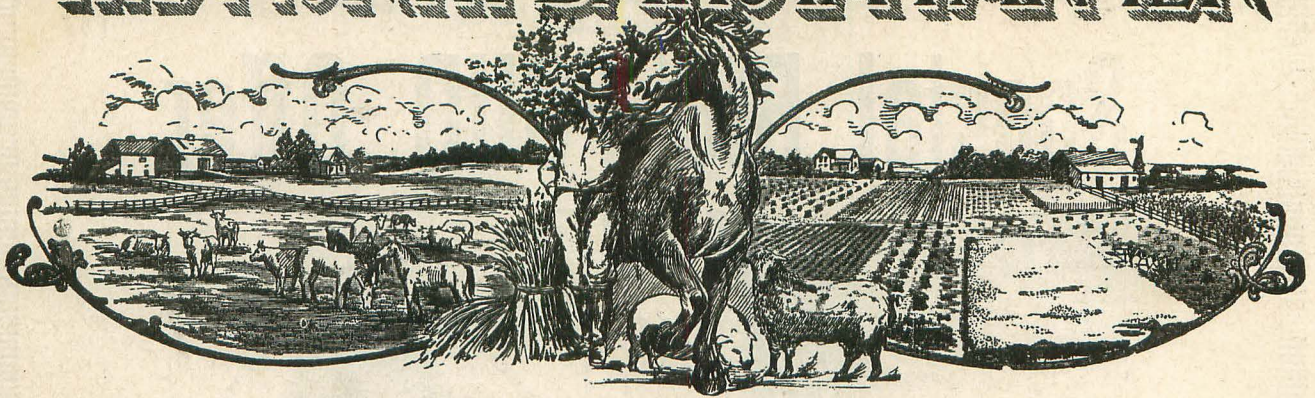


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THE NORTH DAKOTA FARMER



"THE NORTH DAKOTA FARMER FOR NORTH DAKOTA FARMERS"

Vol. 16, No. 3

Lisbon, North Dakota, September 15, 1914

50 Cents A Year

Alex Alin



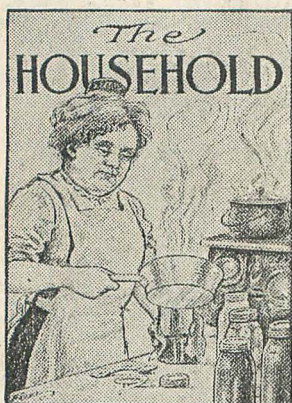
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Lisbon, - - - North Dakota

THE NORTH DAKOTA FARMER

Vol. 16, No. 3

LISBON N. D., SEPTEMBER 15, 1914

50 Cents a Year

The Silo, Corn and Livestock

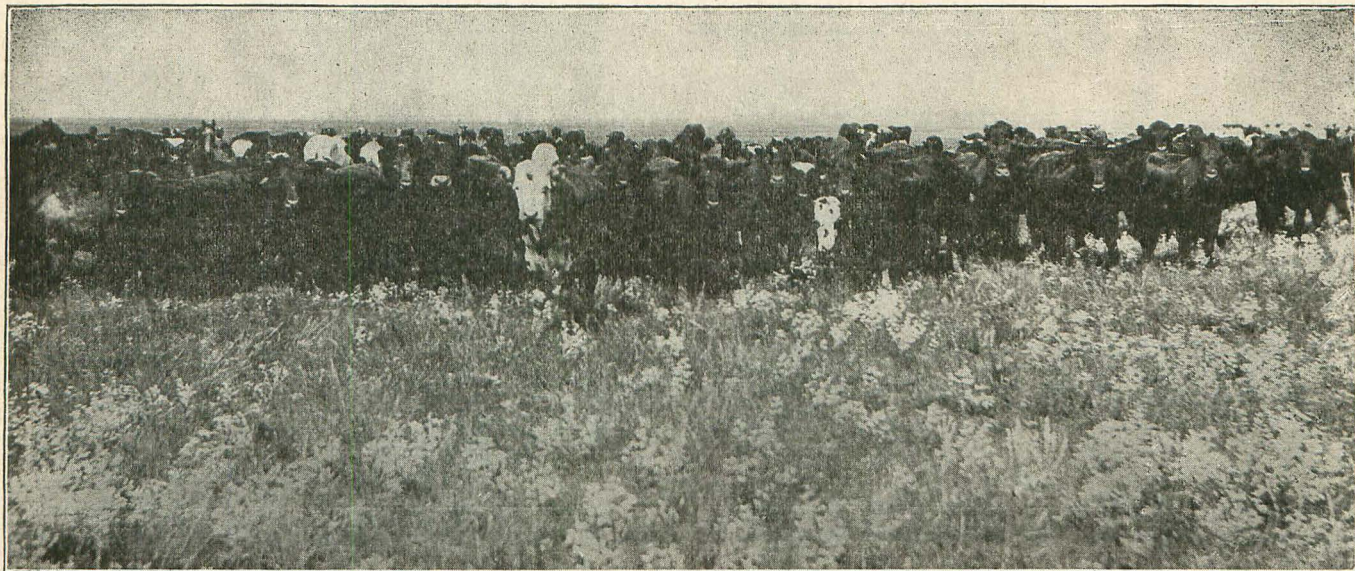
By President J. H. Worst, N. D. A. C.

THE advent of the silo and in consequence the cultivation of corn and the more general introduction of livestock is bound to result in greater and more uniform prosperity for the state. The fact that the present season closes with about 3000 silos already constructed is a sure prophecy of greatly increased interest in livestock and corn on the part of farmers heretofore engaged too exclusively in producing wheat. Doubtless this change results

batted while others can not. Even those that are subject to control are not, for various reasons, always eliminated or kept within reasonably harmless bounds.

But aside from the risk of an industry where the physical elements play such an important part—elements that at best human agencies as yet cannot control—the withdrawal of enormous quantities of plant food from the soil with every crop must be taken into serious consideration.

upon improved methods of farming, chief of which is to improve the present acreage by increasing its fertility and successfully combatting the natural enemies of agriculture. Livestock and the crops that are necessary to support livestock offer the most feasible remedy for improving the fertility of the soil as well as to insure continuous prosperity. Wheat will continue to be grown but under more favorable conditions. By rotating the crops, fungous diseases will be reduced



"Livestock and the crops that are necessary to support livestock offer the most feasible remedy for improving the fertility of the soil."

largely from the influence of thousands of A. C. students who are beginning to make their influence felt, for these subjects are thoroly discussed at the College.

Farming, like any other business, to be successful must eliminate the elements of risk as far as possible. Farming at best is subjected to considerable risk. Hail-storms, injurious insects, hot winds, weeds and fungous and other diseases at times play havoc with the growing crops. Many of these evils can be successfully com-

If each generation of farmers had access to virgin soil it would make but little difference what became of the worn out and discarded farms. But there are no more virgin lands left for exploitation. The present acreage of the United States must support the present and future populations, whatever the number may approximate in the years to come. Instead, therefore, of depending upon new lands to feed and clothe a vastly increased population, we must depend

to a minimum, weeds will be so reduced in number that the harm they do will be negligible and the bad effects resulting from occasional hot winds, drought, or hail storms will prove far less destructive to the farmers's yearly income.

Another element that tends to drive farmers into changing their system of farm management is the labor problem. Less transient and more permanent all-the-year-round employment will materially improve the efficiency

of farm help. It may indeed be possible that with increase of population the farms will of necessity be so reduced in size that the farmer and his family will be able to manage the farm with but little or no outside help. With improved farm machinery and modern household labor-saving equipment, this will not be impossible even without reducing the farm unit below a quarter or half section. There will then be no "rush" season. The work will be distributed throughout the year as it should be. The growing season will not have to bear the exclusive burden of the farmer's prosperity, but the winter months as well will contribute to his wealth in the form of dairy products and daily in-

creasing pounds of beef and mutton.

Corn and alfalfa spell the production of pork in large quantities as well, while potatoes can be grown with profit either for export or stock food. Moreover, potato ground insures an excellent seed bed for wheat or other cereal crops.

Taken all together the farmers of the state are slowly but surely making progress toward a system of farm management that will replace the pioneer industry with a more diversified income,—a system that will so completely eliminate the disastrous effects of chance that the farmer's prosperity will be in proportion to his skill and industry.

The Edgeley Sub-Station

The Edgeley Sub-station is proving to be agricultural headquarters for the farmers of La Moure and the surrounding counties. The state of North Dakota and the Federal Government are co-operating in the investigations which include variety trials, rotation of crops, methods of soil culture, for-

much less. The yields will be considerably higher than on the farms in the surrounding territory.

The average yield of four durum wheats for the ten years has been nearly 21 bushels while the three best fives for the same ten years average fourteen and one-half, and the three

and corn. The weeds were much reduced where the crops were rotated. In the fertilizer experiments the stable manure gave marked results, while no appreciable effect could be noted where the commercial fertilizers were added. Subsoiling and dynamiting have not increased yields.

Corn is making good growth; much of it is in the roasting ear stage. Alfalfa and clover have been cut twice good cuttings each time. Apples, plums, cherries, currants, and gooseberries, are bearing a good crop of fruit. Trees are making a good growth. The grounds are planted with a variety of trees and shrubs that are adapted to this section. This all makes a fine demonstration of what can be done with fruits, trees and shrubs in this part of the state and the best varieties to use.

The sub-station and its grounds have given a new idea of the possibilities of this section for farming and homemaking.

Many farmers visit the station and Mr. Thompson spends considerable time among the farmers. In this way the influence of the sub-station is extended to the surrounding country. Many calls for information come over the telephone.



"The heaviest work at Edgeley has been on the durum wheats"

age crops, grasses, tree and fruit growing.

These experimental plots and grounds are demonstrating the results that can be secured from the different systems of cropping and soil culture. They are better than an open book, as they give the results in terms of the actual crops.

The wheat, oats and barley, have just been cut, and the yields promise to be good. The durum will out-yield the other wheats very much this year. The rust has affected them

best blue stems fifteen and one-half bushels.

The heaviest work at Edgeley has been on the durum wheats. The result has been that a large proportion of the grain grown in this part of the state is the durum, and the very best varieties, as the investigations at the sub-station have made it possible to send out only the best yielders.

One of the most outstanding things was the improved appearance of the crops where rotations are practised. This was true of the grains, grasses,

AVAIN TUBERCULOSIS

A method for detecting the presence of Avain Tuberculosis has been worked out by Drs. L. Van Es and A. F. Schalk of the North Dakota Experiment Station.

This is one of the tests that has baffled the best efforts of the scientists. The method of procedure in the application of the test is to inject tuberculin into the malphigian layer in either the comb or the wattles, the latter giving the best reaction. The

tuberculin used is made from avian tuberculosis germs. The method is quite accurate; 972 of the fowls that reacted were tuberculous.

Fowl Tuberculosis was first found in this country by Pernot in Oregon in 1900 and later by investigations in many other states. The disease exists in North Dakota, tho there is no evidence that it was present prior to 1907. It has come to be one of the most prevalent poultry diseases. By means of this new test it can be readily detected and the diseased birds removed.

The results of the investigation are given in Bulletin 108, North Dakota Experiment Station. The bulletin also includes a summary of the available information on fowl tuberculosis and concludes with a bibliography of the literature on this subject. The authors reviewed the literature on avian tuberculosis in nine languages. It has been found that avian tubercle bacillus is very virulent to most of the birds and especially to the domesticated species. The authors fed twelve of the common English sparrows one meal of chopped up tuberculous chicken liver; all died with generalized tuberculosis; Two after 73 days, two after 75 days, and the others on the 100th, the 104th, the 105th, the 118th, the 128th, the 186th, and the 203rd, one on each date.

The avian bacillus is very resistant to external influences, so that an infected poultry yard may remain infected for a long time. They are quite resistant to the ordinary disinfectants but succumb readily to heat; direct sunlight destroys them in few hours.

The start of the avian tuberculosis is always from a diseased bird; the introduction of infected live birds is not the only means of transmission of the

infection: the trimmings and offal from poultry purchased on the market if thrown where the poultry have access to it, may also transmit the disease if infected.

It has also been found that the eggs from a tuberculous hen may contain the bacillus.

The authors found that avian tuberculosis is essentially a chronic progressive disease; a flock that became infected in 1910 was examined for tuberculosis in 1913: the autopsy showed that 85.71% of the chickens of those hatched in 1910, 24.25% of the 1911 hatch, and but 3.33% of the 1912 birds. This indicates that it does not pay to keep the chickens till they get old.

The authors give the following suggestions for keeping a flock healthy. Use care in introducing new stock: if from questionable sources better tuberculin test; offal from fowls dressed for table uses should be destroyed by burning and especially if from outside sources. The extent to which sparrows and pigeons may carry the disease is not known, but efforts should be made to eliminate them, if it is known that poultry flocks close by are affected with tuberculosis.

When the disease has been introduced into a flock it is advisable to begin culling out all the old stock and tuberculin testing the remainder, removing all that react. Then clean and disinfect the quarters and all eating and drinking utensils. Have the poultry house clean, well-lighted and well-ventilated, and avoid overcrowding.

There is some evidence that the fowl tuberculosis may be transmitted to other farm animals, especially hogs.

This new test for tuberculosis in poultry is one of the biggest steps that has been made in poultry hus-

bandry: it makes possible the elimination of tuberculosis from this class of stock, and its attendant dangers, as well as the economic loss.

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TRI-STATE GRAIN GROWERS' CONVENTION

The date fixed for the 1915 Grain Growers' Convention is January 19-20-21-22.

As decided at the last convention all day Tuesday, Wednesday afternoon and evening, Thursday afternoon and evening, and Friday afternoon will be devoted to the business of the Convention proper.

Wednesday forenoon, Thursday forenoon, and Friday forenoon will be at the disposal of the auxiliary associations, such as livestock, horticulture, conservation, etc., for the transaction of business and discussions of more particular interest to their own organizations, each association making arrangements for its own hall. However, the Livestock Association, the Horticultural Society and the Conservation Association will have the use of the Auditorium, each one forenoon.

All the associations will be given place on the regular program. It is very desirable to secure speakers as largely as possible from North and South Dakota and Minnesota and that the subjects discussed be of such practical character as will meet the conditions and tend to throw light on the vital problems that confront the farmers of these three states.

Those desiring to discuss subjects as above indicated will please write the president stating subject and time desired.

J. H. WORST.

PATRONS OF HUSBANDRY

North Dakota Farmer:

At your solicitation, I will endeavor to state in a few words what our State Grange has done and what we stand for as a National Body. Seven months ago at Bismarck about thirty delegates gathered to organize the first State Grange. We were few in numbers and many of us hardly knew a thing of the purposes of the Grange and what it stood for. We had heard from the lips of our parents and others the history of what the Grange had done years ago and what a sweep it had across the land. Then we heard

that it had fallen in the hands of the Reactionaries and what had been done was about lost. The early Grange movement which shook the political parties and was one of the first to bring new ideals to the front was one of a series of movements that culminated in the progressive evolution of this day, and which seems to dominate all political parties. Could that early Grange agitation have continued, the rule of the people would have been established years ago and the farming element of the nation would have been millions of dollars ahead. When the Grange declined for a time other progressive agencies took its place and we lost our glorious leadership. But the true spirit was kept alive by a few leaders and in spite of the Reactionaries the Grange has again become a non-partisan political factor in both nation and state. In many a state, Michigan and Maine, especially, has the Grange been instrumental in crumbling a powerful political ring. In Washington State only recently the Grange made its power felt when arrogant office holders usurped the power of the people. The Grange aims to keep out of politics but keep in non-partisan politics. And that means the end of the carter that fattens on political corruption. It means that legislators stand fearlessly by the farmer because the Grange stands behind him. With over a million members in the nation, with influence in every Hall of legislature, we can safely say that had it not been for the persistent pressure that the National Grange has brought to bear on our legislators we would today have had no Parcel Post, no

Direct Election of Senators, and in some states no woman suffrage. The power of the saloon and of special privilege and graft is shaken when the farmers unite.

Of course all that sounds big when it refers to the state of North Dakota. Out of that little band that gathered at Bismarck last winter a new spirit was created. Today we are still young, but we have over two thousand members. We are going slowly, not caring for the mushroom growth. North Dakota needs sturdy oaks that take time to grow. We believe in co-operation. So we get our lumber from the western Granges that have lumber on their hands. If you could see some of the dressed and dimension lumber that Washington Grangers send us at half the cost of poorer quality that we get from the local

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FARGO, NORTH DAKOTA

yards, one could easily believe in Grangers standing together.

We buy from the West a carload of guaranteed apples at half the cost that the wholesale fruit firms will sell. We buy our twine in quantities. We meet and have programs and debates and picnics and sociables and rub off the bumps of discord and neighborhood quarrels. And while we are not strong enough to make our wants well known, we are aiming to get behind the movement to reduce the high rate of interest in this state and also help our Congressmen to see that Rural Credit and loans on farms by the Government would help our farmers more than a bountiful harvest.

If any reader feels that he would like to enroll as a member and organize a Grange in his community, let him drop a line to the writer or to the editor of this paper who will put him in touch with the organization. It costs \$1.85 for a man to join and \$1.35 for a woman. The dues are 10 cents a month, one-half of which go into the local treasury. There must be at least thirteen applicants and at least four of them must be women. It is a home co-operative movement that interests all the members of a family.

Yours truly,
Ray McKaig, State Sec.,
Fort Rice, N. D.

SIMPLE METHODS OF CONSTRUCTING CONCRETE CULVERTS

Culverts on the farm might be likened to the old "Forty-niner's" comment on the practice of carrying a pistol. As he put it a gun was something one might not need for a long time "but when you do need it you need it mighty bad." Every farmer will recognize the application. Perched upon a loaded wagon he has driven out of a field into his lane or the public road and dreaded crossing the intervening ditch that marked the boundary. The down-pitch and jolt of the wagon, then the strenuous pull and wrench required to get it up the other side of the ditch spelled wear and tear in large letters, with too often things actually broken or part of the load dumped off. Again, there is the place in the lane that every torrential rain washes into a gully, or the muddy ditch in close proximity to the house or barn.

The farmer is foolish to submit to all this annoyance, inconvenience and exasperation when it is so easy to establish culverts that will remedy the situation effectually and permanently. With little effort and at small expense

he can put down imperishable concrete culverts.

Concrete culverts are built several ways. The purpose here is not to consider the more complicated and expensive types, but culverts of the most economical construction, such as will not only take care of water, but serve as little bridges over ditches or depressions in a road or driveway.

For example, having determined the required size of the culvert and having made the proper excavation, place

in the latter 6 inches of concrete consisting of 1 part Portland cement, 2 parts sand and 4 parts stone, the stone graded from one-fourth inch to one inch in size. If crushed stone is not available use 1 part Portland cement and 5 parts of gravel if the gravel is clean and well graded. After placing a 6-inch bed of concrete in the bottom of the excavation erect braced board forms. The width and depth of the excavation should be such as to allow an 8-inch concrete

How Big Is Your \$ Dollar?



Does it get you 100 cents' worth? Or does a big part of it go to middlemen, who raise your price without raising the quality?

Think this over. Analyze it. Compare it with my direct from factory to farm plan. Then you'll see why I can sell cheaper—why your dollar spent with Galloway is larger and gets you more. It's just the difference between my one profit plan and the old way of making your dollar pay the profit of the manufacturer, wholesaler, jobber and dealer.



You say cash is not always handy. You need a Cream Separator, Gas Engine, Manure Spreader or other farm equipment but you don't want to borrow. So you buy on credit where you can and pay fancy prices. That's now unnecessary. I have added a credit plan. It gives you the opportunity to buy on credit at factory to farm prices, on the basis of one small manufacturer's profit. 5 selling plans to pick from.

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I am known from ocean to ocean as the man who saves the farmers of America a million dollars every year. Why don't you get your share? Spend your dollar where it is divided the least number of times—where it brings YOU the greatest value.

That means the Galloway method of buying from factory to farm at low prices. I save you money at every turn of the road.

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Here they are! Take your choice. I save you money no matter which plan you accept. 1. Cash with order. 2. Bank deposit until you have examined the goods. 3. Part cash, part notes. 4. All notes. 5. Small sum down, balance monthly payments. Under any of these plans you have the privilege of the Galloway 30, 60, 90 days trial.

\$10 Down Buys This 5 H. P. Engine

I save you from \$50 to \$300 on a gasoline engine and guarantee my engine. Jump spark battery ignition. Starts easily even in cold weather. Water cooled. Hit and miss governor. Feather balanced flywheels. Steel crank shaft. Special carburetor. Carefully made cylinders fit snugly enough to retain gas, yet move smoothly without sticking. Gives more power at less cost, than any other. Lasts longer and gives you greater satisfaction. Made in all sizes 1 1/2 to 15 H. P.

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you wish, either spreader, separator or engine. One or all. Economy is wealth. All I ask you to do is to first get my proposition before you purchase any one of these articles of any other make or kind at any price. Just drop me a postal.

Wm. Galloway, President
The William Galloway Company
Galloway Station Waterloo, Iowa





covering at the top and sides of the form. After the concrete has hardened the inside braces are knocked away and the side forms allowed to collapse, which will also release the upper or top board. This will give a flat concrete arch of great strength and the method of constructing it is as simple and economical as could well be devised. Where a very small drain is required and the farmer happens to have some old terra cotta pipe on hand, he could resort to the same method of building a culvert with a round instead of square or rectangular opening allowing the pipe to remain.

In the case of the culvert first described, old lumber free from knot-holes or other openings would answer for forms. Construction of this type would be especially convenient for the short drains often required in the vicinity of the house or barn.

By remembering that a barrel of cement will make about 25 cubic feet of concrete of the proportions given above it will be easy to calculate approximately the amount of cement required for a culvert of given dimensions. In building culverts of this character the farmer should be careful to have clean sand and well-graded aggregates and be patient enough to allow the concrete to harden thoroughly before using the culvert, say for a period of two weeks. More failures are caused by the use of dirty sand unsuitable aggregates, and undue haste in the removal of forms and premature use of construction than are caused by defective cement.

One of the greatest virtues of cement is that it can be employed in just such simple and inexpensive ways as are described above. If the farmer would exercise his ingenuity and inventive talent he could use concrete for many other improvements of like simplicity and low cost.

SOIL FERTILITY

Charles Cristadoro, President Co-operative Association for Better Farming

October—Eighth Year

Col. Roosevelt is said to have stated that the most important issue before our people was soil fertility, the increase and upkeep of the producing power of the land. And when you realize that we are indebted to the farmer, who supplies us all of our bodily wants, from the bean we put into our mouths to the clothes on our backs, and the shoes on our feet, there certainly is something to soil fertility, more than the most of us imagine. To

cultivate a farm and to "mine" a farm are two different propositions. We have two classes of farmers in the country today, the farmer-miner, and the intensive farmer. The former mines his farm as a miner does his mountain claim, taking everything out possible and replacing nothing. The latter, the real farmer, regards his soil as a bank account, an investment that must pay dividends, a mechanical plant or factory, and so he up-keeps the fertility from year to year, plows deeply; cultivates; retails his crops; adds lime and fertilizers generally, all with a view of making the land revenue-producing, yielding interest, increasing the crops as to quantity and quality.

One of the best examples of "farm-mining" was illustrated in connection with our northwestern prairies, when the plow was "drawn thru the bleak, humus-laden and nitrogen-charged soil, as fertile as one could desire, the idea of added fertility never entered the farmer's mind. And so he plowed and harrowed and sowed his wheat broadcast and the rich and moist land gave him thirty-five, forty perhaps, in some cases, fifty bushels of wheat to the acre. It was marvelous that virgin soil, without added fertilizer, should so yield. And again the next year the lauding and enthusiastic farmer plowed and harrowed and sowed and harvested in due course, but no thought was given to the mining of the plant food from the soil, going on and not even was the fertilizing and humus-supplying wheat-straw plowed back into the ground because of its fertilizing value and after harvest time, lit up the prairies for miles. The soil needed neither fertilizer nor humus, so the wheat miner agreed.


A library of hundreds of volumes could be written upon soil fertility alone, for it really is the history of nations. A depleted soil meant a ruined nation and so has it been from the beginning, and had the northwest not abandoned "all wheat" and gone over to diversified farming agricultural ruin would

have resulted. As you give to your land in fertilizers so will it return to you. A farm will only automatically fertilize itself, partially so, thru crop rotation and the growing of nitrogen-implanting legumes.

Don't let your manure stand in pile unused for a year. Eighty tons of manure in pile will weigh up but fifty-three tons after twelve months exposure, and the nitrogen and other elements will be sadly missing in those fifty-three tons left. Not much more valuable than humus.

Use a manure spreader and get the manure where it belongs on the farm and not left in the barnyard indefinitely. Read up on crop rotation, legumes, lime and fertilizers. If you are in doubt about your soil write the Better Farming agent. Know your farm and if you don't know it call in the farm agent to help you. Fertilize the orchard, the crop field, the truck garden and the pasture! If well fertilized a pasture may mean 25 per cent more milk.

"The White Whirlpool," by D. S. Burch, associate editor of Farm and Fireside, formerly dairy commissioner of Kansas, is an allegory dealing with the milk business. It is liberally illustrated and will be interesting reading. The book is neatly bound. It is for sale by the author, (50 cents) 720 Elm Street, Springfield, Ohio.



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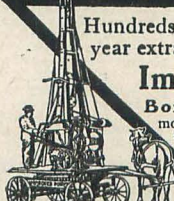
Hundreds of farmers **right now** are making from \$1000.00 to \$2000.00 a year extra money, besides keeping up their farm work, making wells with the

Improved Powers Boring and Drilling Machine

Bores 100 ft. in 10 hours. One man can run it; a team operates it and easily moves it over any road; Bores slate, coal, soapstone—everything except hard rock, and it drills that. No tower or staking—rotates its own drill.

20 years actual service all over the world have proven this the **fastest and most convenient well machine made.** Easy terms. Write for catalog.

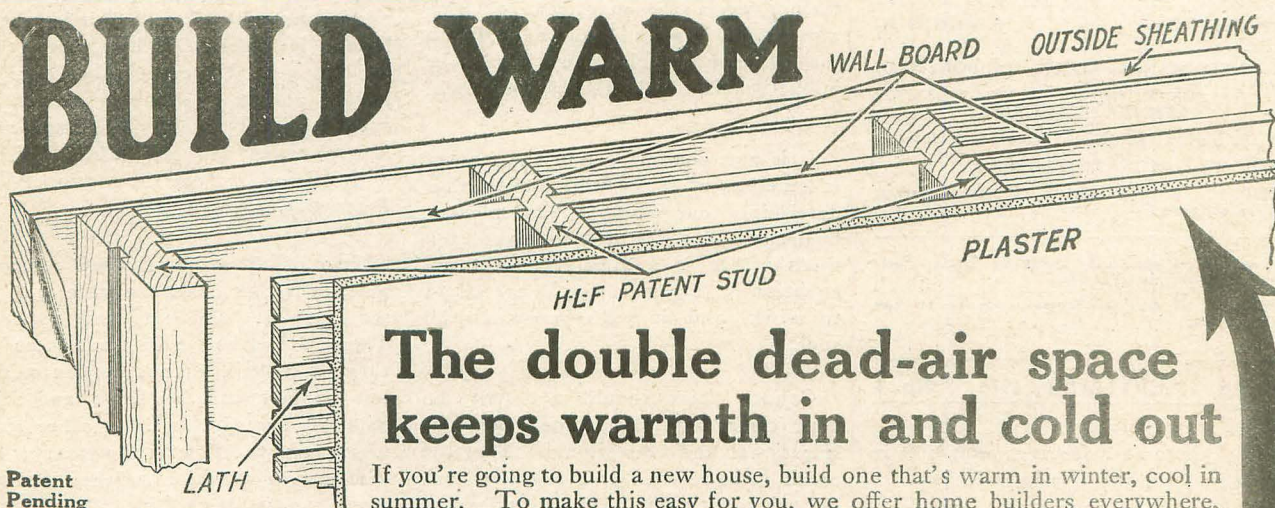
LISLE M'F'G. CO. - - Box 440 Clarinda, Iowa.



It is not the use but the abuse of a good thing that hurts, and excessive use of irrigation water means a dilution and washing below root influence the invaluable plant food, and a tasteless product results. Nothing so well and plainly illustrates this

as the growing of wheat. Irrigated wheat takes second place in the markets alongside of dry-farmed wheat. The irrigated wheat is starchy; the dry-farmed wheat is virile, full of gluten and preferred by millers as the best wheat. Dry-farmed wheat gets

its plant food untitled by super-irrigation. Water-soaked, swampy, air-excluding land never raised any decent crop. There is such a thing as too much irrigation, and that cannot take the place of intelligent fertilization and save cultivation.



Patent Pending

The double dead-air space keeps warmth in and cold out

If you're going to build a new house, build one that's warm in winter, cool in summer. To make this easy for you, we offer home builders everywhere, without royalty, H.-L.-F. stud and wall board construction (patent applied for) illustrated above.

Dead-air is the best non-conductor of heat. This new construction provides *two dead-air spaces* between your warm rooms, and twenty below zero weather outside. Your house is just twice as warm as a house built the ordinary way.

H.-L.-F. stud and wall board costs 25% to 50% less than back plaster

Here's a chance to have a warm house at small extra cost. H.-L.-F. stud and wall board construction *costs 25% to 50% less than back plaster*, and it's a lot better. Back plastering simply makes the outer wall warm. H.-L.-F. construction makes your house *twice as warm* by providing two dead-air blankets to keep out cold. H.-L.-F. stud and wall board construction is easy to use. Studs are accurately milled to take the wall board and wall board is especially made, exact size required. Slip it into place, raise your wall, and there you are. *No fuss, no muss, no delay*—and, best of all, absolute insurance against cold. Get a price on this construction for the house you are planning.

No advance in lumber prices—send list quick for prices

Until further notice, summer prices which resulted in four times as much business this year as last year for Hewitt-Lea-Funck, will continue. No telling what the war will do to prices later on. Get your order in *early*.

We have sold several thousand cars of lumber in less than two years. We own and control, through officers, sawmills, forests, logging railroads, and millwork factories. This means *low prices*. Our *square treatment* has brought many orders from old customers and their friends. Learn how much we can save *you*—send your lumber list quick for freight-paid quotation. Do this now, so that you may get your lumber at the low summer prices.

Send coupon for Prize Plan Book

Gives pictures, floor plans, accurate descriptions and guaranteed costs of 100 good practical homes, all designed for folks who work for their money. This book will save you a thousand dimes—yours for ten cents, and this coupon.

Barn Builder's Guide

Gives real barn information—pictures, floor plans and full information, including guaranteed costs of barns designed by H.-L.-F. Co.'s expert architects, after ideas submitted by practical farmers. Send 4c and the coupon for Book of Barn Plans.

H.-L.-F. Silo Folder

Here's a double wall silo originated by H.-L.-F. Co., that means no-freezing of silage and costs 50 per cent less than stave silos. Can't bulge, shrink or blow down. Send coupon and get this folder. It is free.

Hewitt-Lea-Funck Co.

Capital One Million Dollars

240 Cray Bldg., Seattle, Wash.

Double quick shipments from big stocks

Orders are filled by us within 48 hours. Delivery is a matter of only two or three weeks. A. W. Prust, Wilton, N. D., wrote us July 29th, 1914: "Received the carload of material O. K. It came *sooner than I expected by about four days*. I am saving about \$250.00 on lumber by ordering from you, and, furthermore, I will not have to wait for material, as these local yards do not have the lumber on hand and they hold up the job." Hewitt-Lea-Funck Co. will save *you* money and guarantee you clean, good lumber—we let you see the lumber before you accept, and guarantee satisfaction, or money refunded. *Get our prices on your lumber. Use coupon.*



Hewitt-Lea-Funck Company,
240 Cray Building, Seattle, Wash.

(Be sure to write plainly)

Gentlemen:—Please send me the following:

☐ Approximate cost of H.-L.-F. stud and wall board construction for house I intend to build. Width of house _____ ft.; length _____ ft.; height of walls _____ ft.; number of outside doors _____; number of windows _____.

- ☐ Prize Plan Book (send 10c) ☐ Barn Builder's Guide (send 4c)
☐ Delivered, freight-paid price on enclosed list of materials (no charge)
☐ Lumber Price List and Millwork Catalog (free)
☐ H.-L.-F. Silo Folder (free)

Name _____

Street or R. F. D. No. _____

Post Office _____ State _____

When are you going to build? _____

North Dakota Farmer

Entered as second class matter in the postoffice at
Lisbon, North Dakota

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PROF. W. B. RICHARDS, Livestock.

**PROF. C. B. WALDRON, Fruits, Forestry,
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Address all business correspondence to the
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Vol. 16 SEPTEMBER, 1914 No. 4

The time to conserve moisture is
when we have it. We have it now.

The European war will more than
likely stiffen the price of December
wheat,—possibly that of May wheat
also.

The man that acquires great wealth
while attending to his private business
is very apt to vastly augment his
wealth if entrusted with other peo-
ple's business.

When the average conditions are too
dry to grow clover successfully, Can-
ada field peas mixed with oats make a
fine hay crop and add nitrogen to the
soil same as clover.

The bumper crop of wheat expected
this year will prove a great disap-
pointment on account of rust and a
few hot days. Nevertheless there will
be considerable wheat to market.

The man that spends all his ener-
gies for the sole purpose of accumu-
lating wealth for wealth's sake is sel-
dom a happy man and usually accumu-
lates misery in proportion to his
possessions.

The man that as a student "dug"
for years into Greek and Latin but
found himself utterly ignorant of how
to dig a well on his homestead was
able finally to discern the difference
between theory and practice.

The farmers of the state should do
their own thinking. It doesn't seem

fair to see this big crowd of hard-
headed tillers of the soil directed by a
lot of soft-shirted, soft-handed gentry
who "toil not neither do they spin."

If the gentlemen so deeply interest-
ed in improved agriculture, which is
commendable, would also interest
themselves in the enactment of laws
that would give a "square deal" to
the common people, they would be
public benefactors in the highest sense.

It is not what we get in the market
so much as what the thing costs, that
determines our profits. The poultry
business is not destined to make men
wealthy. It is a steady, honest oc-
cupation for the man who is not afraid
to work, and it pays wages to all
such.

County fairs should not only be
kept clean, but should be made in-
spirational and educational. There is
much to be learned at a properly con-
ducted county fair that will raise the
standard of agriculture up to the level
of the best practice and the best
thought of the community where the
fair is held.

Every North Dakota farm should
have a garden and berry patch as
well as orchard. Apples, plums, and
compass cherries can be grown suc-
cessfully as also can strawberries,
gooseberries, currants, etc. An or-
chard, however, should be surrounded
by a dense shelterbelt situated far
enough away to prevent snow from
lodging on the fruit trees in such
quantities as to break them down.

If the rich thieves were punished in
the same manner and degree as the
little thieves, there would be less loot-
ing of public utilities and less exploit-
ing of the natural resources of all the
people. Just why the stealing of
millions is considered respectable and
the theft of a horse is a penitentiary
offense, is difficult to understand. Of
course, the manner of stealing differs,
but the purpose and effect are the
same, in morals.

The destruction of weeds is a longer
step toward scientific dry-farming
than the soil mulch, tho the latter is
important. It seems ridiculous to
store up, or in other words conserve
moisture for the benefit of weeds as
well as grain crops. The first and
most important step toward dry-farm-
ing is to destroy the weeds. A semi-
arid country is a paradise for weeds,
which, however, must be destroyed
else it will not be a paradise for grain
crops.

"Neglect to properly fertilize and
cultivate your farm and it quickly
runs down at the heel. And instead
of praying for more rain cultivate
your ground and keep in the rain
that is already there, if you plowed
deeply and mulched well—A thoro
cultivation is as good as a rain. The
only excuse for letting a weed grow to
partial maturity is to plow it in where
humus is absent in the ground and
hard to get. Under no other circum-
stances should a weed be allowed to
even begin a healthy moisture-rob-
bing growth." So says Chas. Crista-
doro, Historian of the International Dry
Farming Congress.

Two of the greatest, but controll-
able, evils that curse the state may be
set down as wild oats and gophers.
There are other evils and some of
them, like hail, cannot be controlled;
but gophers can be killed and wild
oats eradicated. It is another case
where co-operation is necessary; for
without co-operation neither noxious
weeds nor destructive "varments"
can be destroyed. As a matter of
fact farmers are paying a mighty high
price for their suspicion of their fel-
lows. Wouldn't it be better to co-
operate and give the first fellow that
gets tricky such a dose as he will
never forget, even if the medicine has
to be injected into lawyers, courts,
and every other defensive or justice-
retarding agency of crooked work.
The majority is all-powerful, if united,
and why not unite?

Corn is fast taking its place as one
of North Dakota's important crops.
The success of the corn growing in
North Dakota depends upon where
the seed is grown. Do not be misled
by extravagant claims made by
southern seed growers. Unless you
procure home-grown seed from a reli-
able seedman, or select your own
homegrown seed yourself, you will
have for your pains at the end of the
season a forest of tall stalks upon
which you will find no mature corn.

North Dakota's corn crop is not
measured by the height of the stalks.
It may seem quite a task to go to the
corn field and select the choicest ear,
carried high from the ground, in a hill
that produces three or four good ears,
from the best developed and most pro-
lific stalk, but you must remember
that it takes but a very few bushels
to seed a forty-acre patch of corn.

Corn that freezes before it is thoroly
dry is practically worthless for seed.
Remember that home-grown seed, if
carefully selected and cured, will not
only insure a good crop for 1915 but
will lay the foundation for more
profitable farming for North Dakota.

Pure Food Advertisers

The products advertised below are in compliance with the pure food law of North Dakota and of the highest grade.
ASK YOUR GROCER FOR THEM.



**"Gee——
they're good!"**

A boy in school defined wholesome food as—"stuff you kin eat's long 's you kin hol'some."

WAMPUM Canned Goods

are wholesome as well as delicious. Give growing children plenty to eat. WAMPUM brand won't hurt them. Sanitary, enamel-lined packages make contents SAFE. Highest EXTRA-standard quality; reasonable price.

A brand of
Canned
Goods from
S-O-W
Company
is a big
asset to a
dealer.



**STONE-ORDEAN-
WELLS COMPANY**

"Largest in the Northwest"

Our Candies Are Pure

Everhart-Chaney Co.
 Fargo, N. Dak.

"BUY"

"EAT"

HOME BRAND

Pure Food Products

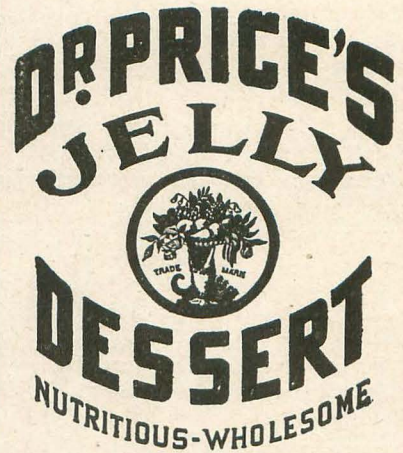
"ECONOMY" "SATISFACTION"

Griggs, Cooper & Co.

MANUFACTURING
WHOLESALE
GROCERS,

ST. PAUL, MINN.

Main Offices:
CORNER THIRD AND BROADWAY



One package, 10 cents, makes one pint of wholesome Fruit Jelly. All flavors from true fruits.

MONARCH BRAND



FOOD PRODUCTS

A GUARANTY OF PURITY. A WELCOME GUEST at every table where the HOUSEWIFE demands the BEST. THE MONARCH LABEL insures QUALITY in Coffee, Catsup, Pickles, Maple Syrup, Canned Goods or any article bearing the MONARCH BRAND of REID MURDOCH & CO CHICAGO.

Eat North Dakota Sweet Corn

Sanitary

PACKED BY
ONLY
FACTORY OF
ITS KIND IN
THE STATE.
SEALED IN
SANITARY
CANS AT
OUR
MODERN
THREE-
STORY
FACTORY



Delicious

NORTH
DAKOTA
CORN
EXCELS IN
SWEETNESS.

ASK YOUR
GROCER
FOR OUR
BRAND.

WRITE FOR
PARTICU-
LARS

Sheyenne Valley Canning Co.

- Lisbon, N. D.

Livestock Department

FARM AND STOCK NOTES

N. J. Shepherd

An overfat hog is rarely a profitable parent.

Improved breeds of hogs are improving the hog profits.

After a colt is halter-broken it should be trained to lead.

Charring corn is one way to provide charcoal for the fowls.

Utility in the farm fowl is more to be considered than fancy points.

One way to cheapen the cost of production is to raise good sized litters.

Proper feeding and exercise will produce style along with the colt's growth.

Serenity undisturbed by fretful restlessness are characteristics of a good brood sow.

Persistency in milk flow is one of the qualities which go to make a profitable dairy cow.

The dairy cow brings in money month by month; the beef cow brings it just once.

The cow is never better than her keep. A long pedigree cannot make up for short feed.

Better to have the team matched in power and endurance than the matter of color.

Poultry are beneficial in the orchard at all times and a great aid in keeping insects in check.

Better breed up and improve the horse of the prevailing breed in the community than to mix breeds.

Because hogs will wallow in the mud is no good reason that their food should be thrown into it.

Uniformity in the size of a bunch of hogs has a good deal to do with the price they will bring.

The boar should not only be pure bred, but also be well bred, a good individual backed by good ancestors.

You can increase the quantity of milk by feed but you must look to blood to improve the quality.

Skim milk cannot be improved as a calf feed by keeping it. It is best, fed direct from the separator.

Usually a cow that does not yield a profit at the pail eats just as much as the cow that does.

Excitement not only checks the flow of milk in a cow but reduces the percentage of fat in the milk.

The uniform excellence of a bunch of feeders from a good sire adds much to the profit of raising and feeding porkers.

The practice of pure breeding is always better than cross breeding or grading, provided the breeder knows something about the business.

The sheep is one of the best kinds of stock for saving feed on the farm that would otherwise go to waste.

When a flock is laying thin-shelled eggs, it is indicative that there is a deficiency in the shell making elements of their food.

A great deal of the sow's future usefulness depends upon how she is cared for and fed until bred for her first litter.

Colts should be thoroly trained to the halter and taught that their feet and legs must be handled, curried, brushed clear down to the hoofs.

Sows that come from prolific families are more certain to inherit their qualities and become good mothers than those that descend from families that are less prolific.

As a rule breeding boars should be selected from spring rather than from autumn litters, as with the former there is greater opportunity for securing desirable development, owing to greater suitability of temperature, food and facilities for exercise.

BACTERIA MULTIPLY RAPIDLY IN WARM MILK

Twenty degrees of temperature make a great deal of difference in the rapidity with which bacteria multiply in milk, according to the dairy division of the department. There is a certain temperature which is most favorable for the growth of these tiny organisms. Below this temperature the growth is retarded; the lower the temperature the slower is the growth. Bacteria that increase rapidly at 70 degrees F. grow much more slowly at 50 degrees, and at 40 grow hardly at all. Some kinds, however, tend to increase even at the freezing point.

The rapidity with which bacteria multiply in milk at different temperatures is shown in the following:

Temperature of milk: 50 degrees F.; Number per cubic centimeter at beginning, 10; Number at end of 6 hours 12; Number at end of 12 hours, 15; Number at end of 24 hours, 41; Number at end of 40 hours, 62.

Temperature of milk, 68 degrees F.; Number per cubic centimeter at beginning, 10; Number at end of 6 hours 17; Number at end of 12 hours, 242; Number at end of 24 hours, 61,280; Number at end of 40 hours, 3,574,990.

Many of the bacteria commonly found in milk produce no apparent change in the milk. Others may change the flavor without changing the appearance, while some of the most common types of bacteria cause marked changes in both appearance and flavor. In this class are included the bacteria which sour the milk by converting the sugar into lactic acid and those which form a sweet curd. Another type destroys the casein and albumen in the milk and causes putrefaction and bad odors.

The number of bacteria in milk depends, first, on the number of bacteria in the udder; second, on the amount of contamination from outside sources; and, third, on the rapidity of the bacterial growth. The rate of growth depends on the temperature at which the milk is held.

THE BEST LINIMENT

OR PAIN KILLER FOR THE HUMAN BODY

Gombault's Caustic Balsam

IT HAS NO EQUAL

For —It is penetrating, soothing and healing, and for all Old Sores, Bruises, or Wounds, Felons, Exterior Cancers, Boils, Corns and Bunions. CAUSTIC BALSAM has no equal as a Liniment.

We would say to all who buy it that it does not contain a particle of poisonous substance and therefore no harm can result from its external use. Persistent, thorough use will cure many old or chronic ailments and it can be used on any case that requires an outward application with perfect safety.

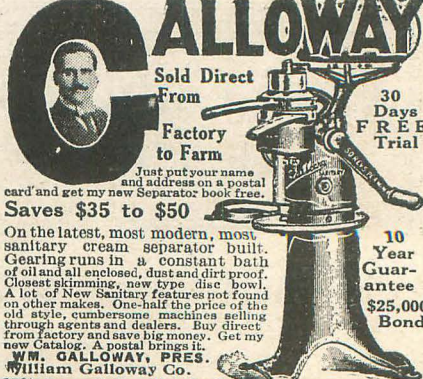
A Perfectly Safe and Reliable Remedy for
Sore Throat
Chest Cold
Backache
Neuralgia
Sprains
Strains
Lumbago
Diphtheria
Sore Lungs
Rheumatism
and
all Stiff Joints

REMOVES THE SORENESS—STRENGTHENS MUSCLES

Cornhill, Tex.—"One bottle Caustic Balsam did my rheumatism more good than \$120.00 paid in doctor's bills."

OTTO A. BEYER.
Price \$1.50 per bottle. Sold by druggists, or sent by us express prepaid. Write for Booklet R.

THE LAWRENCE-WILLIAMS COMPANY, Cleveland, O.



GALLOWAY

Sold Direct From
Factory to Farm

30 Days FREE Trial

10 Year Guarantee
\$25,000 Bond

Just put your name and address on a postal card and get my new Separator book free.

Saves \$35 to \$50

On the latest, most modern, most sanitary cream separator built. Gearing runs in a constant bath of oil and all enclosed, dust and dirt proof. Closest skimming, new type disc bowl. A lot of New Sanitary features not found on other makes. One-half the price of the old style, cumbersome machines selling through agents and dealers. Buy direct from factory and save big money. Get my new Catalog. A postal brings it.

Wm. GALLOWAY, PRES.
William Galloway Co.
928 Galloway Station, Waterloo, Ia.

THE IMPORTANCE OF COST ACCOUNTING IN FEEDING CATTLE AS SHOWN IN EXPERIMENTS IN THE CORN BELT

The importance of keeping accurate farm records of the cost of feeding animals is shown in reports giving the profits from feeding on 24 Iowa farms.

These records, which were made on the corn belt farms of men known to be careful and experienced feeders, were kept carefully for two years. The results as reported in Farmers' Bulletin No. 588, of the U. S. Department of Agriculture, are as follows:

To determine as accurately as possible the cost of feeding farm animals cost-accounting records were kept for two years on 24 Iowa farms. The men selected were leading farmers in their communities, known to be careful and experienced feeders. (During the feeding year beginning with the fall of 1909 the average profit on 961 cattle fed in 22 bunches was \$2.05 per head, in addition to the profits on the hogs following them. The prices received were very satisfactory. The 1,504 hogs following these steers were given extra grain. Market prices in the spring of 1910 were such that a profit of \$6.67 per hog was secured, thus giving a profit of \$12.49 per steer when the pork was credited to the steers.)

The following feeding year 1910-11 proved unsatisfactory due to prices which caused a loss of 78 cents per head on 1,138 cattle that were fed on 28 farms. The 1,646 hogs following these steers returned an average profit of \$3.33, or, when the profit on the hogs was credited to the steers the net profit was \$4.04 per steer.

Until systems of cost accounting which took into account all the overhead charges as well as the main cost were used the expense of feeding was underestimated. The following table shows the proportionate cost of different items based on the cost-accounting records kept on the 24 Iowa farms. These figures will vary somewhat from year to year as the relative prices of cattle and feeds change. The greatest variation will occur in the original cost of the cattle and in the cost of the feeds.

Percentage of the various expenses incurred in cattle feeding on 24 Iowa farms:

In the year 1909-10: the purchase price was 55.8%; feed, 36.9%; interest at 6% 1.3%; labor, 1.6%; shipping and selling 4.4%; total, 100%.

In the year 1910-11: purchase price, 59.9%; feed, 31.8% interest at 6%, 1.8%; labor 1.8%; shipping and selling, 4.7%; total, 100%.

Purchase price: Delivered at farm (including freight and incidental charges).

Shipping and selling: Exclusive of shrinkage.

In these statistics no account was taken of the occasional loss of a steer which ordinarily averages one-half of one per cent of the total number; nor were interest taxes and depreciation charges on the feeding plant considered. Careful study indicates that these and other incidental charges would about offset the value of the manure which is also difficult to estimate. In the table interest has been charged at six per cent on the cost of the cattle laid down at the farm.

The labor percentage was figured on the basis of man labor at 16 cents an hour and horse labor at 8 cents an hour. The labor cost on 49 bunches of cattle totaling 2100 head for an average feeding period of 146 days was a little over nine and one-half mills per head. The cost varied from 4 mills to as high as 2 or 3 cents dependent on the manner in which the cattle were fed. A larger feeder figured on one cent per day per steer for labor. On 500 head this gave him a small profit which increased with the number fed. A large feeding plant which was operated for 11 years in Nebraska and during that time fed about 50,000 steers, figured its cost at 1.2 cents per head per day. While this firm had expensive labor and equipment it nevertheless had every convenience for the economical handling of the feeds.

The selling cost including freight, yardage commission and other incidentals will vary with the distance shipped. The total cost on 676 cat-

CLASSIFIED ADS.

One Cent a Word

Small advertisements will be classified under appropriate headings at the low price of one cent a word for each insertion. Cash must accompany all orders. Each initial or number must count as one word. TRY IT HERE.

LIVE STOCK

POLAND CHINA PIGS, also Shropshire sheep. Seed grain. GEO. N. SMITH, Amentia, N. D.

ASH GROVE FARM. Knudtson & Son, Props. Breeders of Pure Bred Percheron Horses and Short Horn Cattle, Both Sexes. Stock for Sale. Route 1 Fullerton, N. D.

J. S. BIXBY
RED POLL CATTLE. If you want dual-purpose cattle, I have the best. Rhode Island Reds, also in stock. LISBON NORTH DAKOTA

Mulefoot Hogs are Healthy, Hardy and Prolific. Jno. Dunlap, Breeder, Williamsport, Ohio.

SHORT HORNS

Young stock for sale. All registered. Jim Uglum, - - - Bowbells, N. D.

Maple Lodge Large Registered Yorkshire Pigs, \$9 to \$12. Sired by Egeland Valliant weight 600 pounds.
Bourbon Red Turkeys.....\$1.75 to \$3.
Partridge Wyandottes, Eggs and Stock....\$1.50
Good Winter Layers All Stock Guaranteed
EDWARD KLEBAUM, - - - Egeland, N. D.

REGISTERED POLLED SHORTHORN CATTLE AND BOURBON RED TURKEYS.
Some good young Bulls for Sale.
Odessa Stock Farm, - Devils Lake, N. D.

Meadowlawn Farm. The largest breeders in North Dakota. Percheron Horses, Shorthorn Cattle, and Berkshire Hogs. Where quality counts. Address: A. H. WHITE, - - - Kramer, N. D.

For Large Yorkshires of either sex and bred gilts, address L. A. Knoke, Badger Den Stock Farm, Willow City, N. D.

Choice Poland China Hogs always on hand. Bred Gilts all sold. Register now for spring pigs, either sex; prices right. Thos. Forbes, Petersburg, N. D.

HIGH GRADE LIVESTOCK: Clydesdales, Double-standard Polled Durhams. Farm Horses and Drivers. Leal Stock Farm, - - - Leal N. D.

PERCHERONS FOR SALE

We are offering a choice lot of young mares and stallions, all raised here on the farm and thoroughly acclimated.

WHITE BROTHERS

Valley City - - - North Dakota

ENVILLA STOCK FARM

Envilla Stock Farm, Cogswell, N. D. will quote you special prices on Angus Cattle, Shetland Ponies, Duroc Jersey Hogs, Wolf Hounds, Collies, Rat Dogs and other breeds, Angora Cats. All varieties of chickens; turkeys, geese, ducks, guineas, pheasants, rabbits, ferrets. Pets. Live Foxes, Skunks, Mink and Badgers.

MISCELLANEOUS

WANTED. Live Foxes, Skunks, Mink and Badgers, any time.
Envilla Stock Farm, - - - Cogswell, N. D.

WANTED to hear from owner of good farm for sale. Send description and cash price.
D. F. Bush, Minneapolis, Minn.

Lady Agents, to represent us, placing our fine collection of Perennial Flowering Plants in every City and Town, for fall planting. Address Wm. Pfander, Jr. Proprietor Pioneer Nursery, New Ulm, Minn.

FOR SALE: 45 Horse, 4 Cylinder, Eagle Traction Engine; nearly new for \$600.00.
F. Jaskowiak, - - - Bismarck, N. D.

FILMS DEVELOPED, 10 cents (any size). Prints or Post Cards, 3 cents each. Ansco films at list price, sent post paid. One of the largest finishers in this country. Thirty years' experience.
RITCHIE BROTHERS

Dept. 2, - - - Centralia, Ill.

GIVE GERMAN DISTEMPER REMEDY a Trial. Your money back if not satisfied.
German Distemper Remedy Co., Goshen, Ind.



**Two
O.I.C.
Hogs**

Weigh 2806 lbs.

Why lose profits breeding and feeding scrub hogs? Two of our O. I. C. Hogs weighed 2806 lbs. Will ship you sample pair of these famous hogs on time and give agency to first applicant. We are originators, most extensive breeders and shippers of thoroughbred hogs in the world.

U. S. Govt. Inspected Herd

We have bred the O. I. C. Hogs for 51 years and have never lost a hog with cholera or any other contagious disease.

**Write—Today—for Free Book
"The Hog from Birth to Sale"**

THE L. B. SILVER CO.

544 Vickers Building, Cleveland, Ohio

the shipped from Central Iowa to Chicago amounted to \$3.98 per head or 31 cents per hundredweight. This does not include shrinkage in transit, which would have to be added to these costs. As the average shrinkage in transit of all classes of cattle is about 4 per cent of their live weight, the value of this loss in weight may be added to the above costs and the amount calculated on the hundred-weight basis. These figures give a fair working estimate as ordinarily the freight rate will not run much higher because persons living farther east will either be a shorter distance from Chicago or will choose some market still farther east. Those living farther west will to a great extent patronize the "river" stockyards. A prominent Kansas feeder estimates, figuring all charges, that it costs 50 cents per hundredweight to ship from the central part of that state to Chicago, this charge varying somewhat with the weight of the cattle.

Drinking vessels placed in the hen house should be put on a shelf that is raised at least six inches from the ground, or the fowls will scratch a lot of dirt into the water.

WANTED to hear of a good farm or unimproved land for sale. Send description and price. **Northwestern Business Agency, Mpls, Minn.**

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For Sale Registered Jersey Bull ten months old. If interested write **W. G. WEEKS, BUCKOO, N. D.**

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324 W. 23d St., New York City.



Poultry Department



THE BACKYARD POULTRY FLOCK

Michael K. Boyer

There are thousands of families engaged in poultry keeping who are never heard of, simply because they content themselves with a small flock, largely due to the fact that their territory is limited. Their sole object is to furnish eggs and poultry for their own table, and seldom keep more than a dozen hens on the place. Cases may be found, however, where they crowd these backyards with such a number that "standing room only" is the result.

The object of this article is to point out the value of these small flocks, when properly handled, and also to give timely hints to those about em-

barking in the work on this limited territory.

In making the start there are a number of matters that must be considered.

First, the breed to select. The writer has found, after years of experimenting, that our American, and the Asiatic varieties, are the best adapted to restricted areas. The Plymouth Rock is an excellent variety for this purpose, if not allowed to become too fat. It is a noteworthy fact that a Plymouth Rock can be overfatted more quickly than can a Brahma. A Cochon breeder declares that his variety is less liable to overfatten than the Brahma. It is a fact that a White Wyandotte will stand heavier feeding than will any other variety, and still remain in good con-

ST. PAUL UNION STOCKYARDS COMPANY, SOUTH ST. PAUL, MINN.

Comparison of Receipts and Shipments of Livestock for August, 1914

	Receipts						Total Cars
	Railroads	Cattle	Calves	Hogs	Sheep	Horses	
C. R. I. & P.	164	122	565	.....	.....	.....	17
C. G. W....	642	427	2809	655	15	86	86
C. M. & St. P.	2890	746	8744	1927	11	279	279
M. & St. L.	1125	546	7936	530	26	169	169
C.,St.P.,M.& O.	2074	943	9488	2047	253	284	284
C. B. & Q....	414	174	548	632	.....	27	27
M.St.P.&S.S.M.	10744	2277	11556	2185	5	664	664
Gt. Nor.....	10397	2821	16522	9289	66	757	757
Nor. Pac.....	9074	1250	7231	6713	36	513	513
St. P. B. & T.	22	5	.....	.....	.....	1	1
Driven In....	401	203	636	47	31	.....	.....
Total.....	37947	9514	66035	24025	443	2797	2797
Inc. over 1913	8179	2068	14453	.....	.....	475	475
Decrease.....	.....	.....	.....	24447	190	.....	.....
Jan. 1 to date	230872	82473	951160	244928	3291	24752	24752
Inc. over 1913	21487	1523	202494	40940	.....	3894	3894
Decrease.....	.....	.....	.....	.....	352	.....	.....
Av. Weights .	838	194	254	77	.....	.....	.....

	Shipments						Total Cars
	Railroads	Cattle	Calves	Hogs	Sheep	Horses	
C. R. I. & P.	1228	1	.....	120	.....	39	39
C. G. W.....	2262	228	693	829	17	98	98
C. M. & St. P.	6100	211	10666	1224	2	358	358
M. & St. L....	1136	10	903	320	.....	49	49
C.,St.P.,M.&O.	5374	388	2610	6933	.....	229	229
C. B. & Q....	4360	22	3406	718	36	228	228
M. St. P. & S.S.M.	636	.....	219	536	91	32	32
Gt. Nor.....	1546	205	.....	501	23	57	57
Nor. Pac.	1018	2	.....	523	36	43	43
St. P. B. & T.	15	.....	.....	12	.....	1	1
Driven Out..	488	142	1477	186	84	.....	.....
Total.....	24163	1209	19974	11902	289	1134	1134
Inc. over 1913	4439	419	10792	.....	.....	207	207
Decrease.....	.....	.....	.....	23720	368	.....	.....
Jan. 1 to date	149017	17521	262303	165498	3190	8551	8551
Inc. over 1913	5723	.....	89524	26743	.....	1624	1624
Decrease.....	.....	.....	.....	.....	424	.....	.....

dition. In point of overfat, then, the Wyandotte has the lead.

The Brahma is a quiet, peaceable fowl, and if rightly handled will do excellent laying, and give the best of results in the backyard. It cares very little for ranging, and we have confined them by fences only two feet high. The Cochins are very good and in many respects equal to the Brahmas, but the latter are better layers and furnish better table carcasses.

One rarely discovers disease among the Brahmas or the Cochins. We have yet to hear the first report of their becoming feather-eaters. They are not mischievous, are very pretty in plumage, and very satisfactory in every way.

We have a very high opinion of the Leghorns and the Minorcas, but their constant nervous condition is against them for confinement to small yards. They want a good range, and when furnished that are very profitable as layers, but not of much value as table poultry on account of their weight.

The question of housing, is the next important matter to consider. The average city lot "henery" is an elaborate affair—and if it is not that

it is a "make-shift."—either an ornamental house or a slipshod one. But on some lots we have seen houses that were neat, comfortable and practical, but plain in structure. Such houses, by their proper arrangement, are cool in summer and warm in winter. The plain scratching-shed house is about the most economical to build and to have.

Of late years we have been introduced to a system of quartering poultry on a back lot that is to be commended in some respects and doubted otherwise. The system calls for a series of small houses, to contain six fowls each, the roosting quarters upstairs and the scratching part down stairs. Many reports are given of the successful working of this plan. The small family part is good; but to keep the hens constantly quartered within the limits of a small scratching shed is a part that is not very clear to the minds of veteran poultrymen. There should be a run of sufficient size so that the fowls can better exercise. We are not going to criticise the system for the reason that it is still too new, and also because we are not sufficiently acquainted with it. We believe in small families, and generous

ST. PAUL UNION STOCKYARDS COMPANY, SOUTH ST. PAUL, MINN.

Comparison of the Origin and Disposition of Livestock for August, 1914

Origin of Livestock Received						
States	Cattle	Calves	Hogs	Sheep	Horses	Total Cars
Minnesota....	11666	7001	45872	8042	95	1293
Wisconsin....	3066	1379	4198	3039	16	229
Iowa.....			70		258	12
Far South....	797	231				22
So. Dakota....	1656	91	2374	379	1	111
No. Dakota...	10033	491	9089	1367	37	564
Montana....	4584	105	236	11051	36	243
Far West....						
Manitoba & NWT.	6145	145	4196	22		321
Far East....						
Returned....		71		125		2
Totals.....	37947	9514	66035	24025	443	2797

Disposition of Livestock						
S. St. Paul P'k'rs	11560	6446	46224	11442		
Cy. & St. Butch	1160	36	3518	48		74
Outside Packers	620		11751			164
Minnesota....	6280	773	539	5450	162	229
Wisconsin....	1999	157	6	305	75	69
Iowa.....	3218	1	438			107
Nebraska....						
Kans. & Mo..						
So. Dakota..	1473	50		260		39
No. Dakota...	537	6		112		17
Mont. & West	329	55				9
Far South....						
Manitoba & NWT.	42			371	16	4
Mich. & E. Can.						
Chicago....	6897	34	2440	5231		360
Ills. (ex Chicago)	1069	26				40
Eastern Points	539		198		36	20
Acct. Serum Plants			1084			
Returned....		71		125		2
Totals.....	24163	1209	19974	11902	289	1134

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150 Choice Ferris Strain
S. C. White Leghorn Cock-
erals at \$1.00 each.

MRS. WM. RYAN,
Pekin, N. D.

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And prize-winning strain. Barred Plymouth
Rocks, White Orpington Indian Runner Ducks;
Silver Spangled Hamburgs; Single Comb White and
Brown Leghorns. Stock and Eggs at Reduced
prices.

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Rose Comb Reds, Single
Comb White Leghorns and
White Wyandottes. \$1.00 per
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Day-old chicks. Orders
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Bronze turkeys.

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Rose Comb Red Cockerels for \$1.50; and
Fawn and White Indian Runners, \$2.50 per
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White and Columbian Wyandottes,
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Over 30 years a breeder. Stock and eggs for
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White Rock and Columbia Wyandottes and
Buff Orpingtons. Stock and Hatching Eggs in
Season. O. A. Barton, Valley City, N. D.

Latta's S. C. Rhode Island Reds. First Prize
Winners wherever shown. Stock and Eggs for
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horns and Buff Wyandottes. Stock and Eggs for
Sale. V. E. GRANT, Prop., Cuba, N. D.

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WHITE WYANDOTTES. If you want eggs from
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veloping a special laying strain by use of the trap
nest. Prices reasonable. Write
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Silver Campines and Buff Wyandottes. Great
layers of large white eggs. Eggs and young stock for
sale in season. E. K. Myhre, Valley City, N. D.

FOR SALE. M. B. Turkey Toms, raised from our
Diploma Stock, \$5.00 and up; also Eggs from 26
varieties poultry. Catalog free.
L. GULDEN, Osakis, Minn.

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sized runs even on that city lot.

The question of feeding is very important. Small flocks on city lots are very apt to be overfed. Neighbors, out of pure kindness, will throw their table scraps over the fence, and that, in addition to what comes from the owner's table, soon puts the fowls out of condition. These scraps being largely composed of meat, boiled potatoes, and other vegetables, are very fattening when given in excess. It is always best to politely request the neighbors, if they have any table scraps to spare, to hand the same to you personally. Then, if they are chopped into the morning mash it will be better relished, and give better results.

Such articles of food as parings, stale bread, bits of meat, etc., had best be put in an old pot and cooked each evening. The next morning give it another heating, while a pint of bran and a mixture of equal parts of ground oats and cornmeal are being scalded, and stirred into a crumbly condition. Then add the cooked articles and mix thoroly. Of this combination do not give over two quarts for breakfast. If it is less occasionally, so much the better. A pinch of salt should be added to the scraps while they are cooking.

At noon scatter a pint of oats or wheat among the litter so that the fowls will exercise. In the evening, about an hour before dark, scatter a quart of wheat or oats among the litter. During winter, it is well to make the evening mixture a pint of wheat and a pint of corn, as the latter is the best heating food that can be given, but poultry in confined quarters should not be fed corn during summer.

Thruout the entire year green food of some kind should enter the daily bill of fare. In winter vegetables, cut clover or alfalfa hay, will serve this purpose to a great extent. During the summer there will always be more or less green stuff, like lawn clippings, lettuce leaves, turnips, beet and onion tops, etc., refuse from the kitchen. A box containing grit, oyster shell and charcoal should be constantly within reach.

All the above is intended for a flock of a dozen fowls. For a larger or smaller flock there must be more or less food in proportion.

Another precaution is cleanliness. Keep down the lice. Whitewash the interior of the house once or twice a year. Clean up the droppings daily. Spray monthly with kerosene. Use tobacco stems for nesting material. With such care, the village-lot flock will be profitable.

Poultry Notes

There are too many farms heavily loaded with mortgage. There are too many unpaid fertilizer bills. Too much time and capital is invested in uncertainties, and too much risk taken with single crops. The very source of good income on the farm—the poultry—is neglected. The time has come, if the farmer wishes to get out of debt, to pay more attention to stock raising—and no stock offers better returns than the growing of chickens and eggs for market. They are mortgage lifters. True, we must have farmers, and dairymen, and all that; but there should be less speculative farming, and more poultry raising.

The writer is strongly opposed to the use of cayenne pepper. He knows from past experience that liver disease and kindred troubles are the general result when this strong spice is used; but if that condiment is placed in a preparation of spices, there no doubt is a medicinal virtue in it. Condition powder, if rightly made, is composed of such ingredients as work on the blood, which in turn purify the system, and nip in the bud any disease germ that may be starting. Furthermore, a reliable powder will strengthen the organs, which must make egg production more easy and natural. Of course, there must be a judicious use of all stimulating preparations—just enough to gain the point desired. It is not in the use, but the abuse that condition powder, or any stimulant like corn, buckwheat, or barley get, that makes them dangerous to fowl life.

G. H. Wyckoff says that 100 pullets, hatched at one time, and raised together, were placed in one house, and when one laid she was taken out. This was continued until there were fifty in each house. A critical examination showed that nearly all that were laying were of a certain type—while those that were still unproductive, were of another type—a longer legged, ungainly, slim-bodied hen, that spends her time looking for something to get scared at. A record of the two flocks showed a difference of twenty per cent in the number of eggs laid. No. 1 kept laying until nearly denuded of feathers, and after molting be-

gan laying before No. 2 did. A short-legged, deep-bodied, full-breasted, wedge-shaped, large combed hen, with a quiet disposition, has capacity to consume large quantities of food, and return eggs instead of noise and flutter.

According to Joseph Wallace, inflammation of the oviduct will check the flow of carbonate and phosphate of lime, which give to the shell its hardness; or the system may be deficient in some of these constituents, consequently the laying of eggs without shells, or with soft shells. Egg binding follows. An egg drops from the cluster to receive its natural coating or shell; there being a deficiency of shell matter, the egg remains longer in the oviduct, in obedience to nature; another follows that one and soon another, all awaiting their turn to be coated. The presence of so many eggs without shells crowding one another for several days, is very apt to cause fever or inflammation of the oviduct, which, of course, obstructs the passage. If the hen cannot expel those eggs, and no immediate relief is given, the heat of the oviduct literally bakes the contents of the eggs, and a tumor forms and encloses the eggs in a tough sac, which shows itself in the bagging down so common among old hens.

There is a little secret which makes some men fairly coin money while others hardly make a sale. It is the manner in which the goods are marketed. First, the condition in which the goods are sent to the stalls. Second, the reputation the goods have. Third, the time marketed.

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1st, 2nd, 3rd Cock; 1st, 3rd, 4th Hen.

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1st, 2nd, 3rd, 4th Pullet; 1st Pen.

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School and Home

Miss Ura Leader,
Ruraldale, N. D.

Dear Miss Leader:

You are undoubtedly as much disappointed as was the writer not to receive this month a letter from Prof. Randlett, who wrote you so interestingly last year. Mr. Randlett informs us that on account of pressing duties he will not be able to write the coming year, but he has induced Prof. Pope to contribute articles on the course of study in Elementary Agriculture.

Prof. Pope, who was formerly connected with the Mayville Normal, is well known to many of the teachers and we bespeak for all our readers some interesting and instructive articles.

You will find the articles by President Worst, on "The Silo, Corn, and Livestock," on "Weeds" by Prof. Bolley and on "Soil Fertility" by Charles Cristadoro excellent for supplementary reading and instruction the coming month.

Yours very truly,
THE PUBLISHER.

HOW TO PREVENT CROP DESTRUCTION BY WEEDS

H. L. Bolley, in Institute Manual
OCTOBER—SEVENTH YEAR

This matter is one in which I take no great pleasure in writing inasmuch as the conditions under which a weed may develop so as to produce crop destruction are as variable as there are kinds of weather and kinds of soil, and finally as there are kinds of men that work with these different factors. One man can use the method which one advises, successfully, raise a good crop and keep out the weeds; while another man will utterly fail when using the same method, not perhaps because the method is wrong, but simply because the man does not like that method of work or has not sufficient judgment to appreciate the method. Most often, it is because the method does not appeal to him as being a profitable one. Quite often the person lacks persistence.

If there is any one thing that nature has done well it is in its development of plants on the surface of the earth. Before man began to think about growing crops nature had sup-

plied the earth with many different kinds of plants, each kind particularly fitted to get its living under the conditions in which it is found. Man changes these conditions and some of the plants which are not valuable for cropping purposes grow very abundantly when they come under ordinary cropping conditions.

Any plant may become a weed when it gets to growing in a place where someone is trying to cultivate another kind of plant. Because we call a plant a weed is not a good reason why it is a bad plant. The earth would soon become a desert were it not for the weeds which cloth it. It thus becomes a question of how to control the weeds, and not how to kill them. There are perhaps few kinds that need to be entirely exterminated in order to allow man to grow the crops necessary for food and forage purposes.

Conditions Develop Weeds. If one expects to control weeds he must study the conditions of his land, climatic conditions, etc. He must learn to look at the land in such a way that on seeing it he will know what weeds would grow if he gave them a chance. He must study the land to determine what sort of crop he can grow there provided he gives it as much cultivation as he is able. If the farmer fails to take these points into consideration his cropping work will become a matter of accident. Sometimes his crop will succeed, sometimes the weeds will overrun it.

Some plants which we call weeds will do well in very sandy places, but are not to be feared in heavy wet land. Other kinds can only do well in heavy, wet lands and are not to be feared on sandy or well drained areas. Some kinds have seeds which blow by the wind, and some have seeds that float by water, and some are carried by numerous other means; and some produce but few seeds yet have underground jointed stems from which spring numerous plants, new plants being able to come from each joint.

One who wishes to fight weeds must take into account such features as those just mentioned regarding the seeds and the underground stems. He must also consider whether the plant lives more than one year or grows annually from the seed. Such features determine what must be done

in order to fight a particular plant successfully.

Germination Habits. The seeds of some plants are very resistant to decay, being able to remain in the ground for a number of years without germinating, provided that they are in deep enough to have the soil cut off the air supply. There are other kinds of weeds which produce seeds which have a dormant or resting period, that is, seeds which do not germinate in the same year they are produced, even though given an opportunity. Wild oats seeds mostly germinate the same year they are grown if given opportunity. However, there are some strains which do not. Some wild oats produce seeds fully half of which will not germinate until the next year. The farmer must know something about such peculiarities of seeds.

Particularly, this resting phase of seeds makes a feature difficult for the farmer to handle. If he neglects it he will often lose all of his work.

Effect of Deep Planting Upon Weed Seeds. Another feature of great importance is that different kinds of seeds grow at different depths. Some will not sprout if they are more than an inch deep, while certain other kinds will sprout or decay no matter

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at what depth they are planted. Common mustard, for instance, will seldom sprout if planted over three inches deep in a heavy soil. Pepper-grass will seldom produce any plants if over one and a half inches deep in a heavy soil. Kingshead seeds can come up thru five inches of soil.

Methods. The methods of fighting weeds are almost as numerous as the men who have proposed them. This comes about because each weed needs to be handled differently under different soil and growing conditions. The character of the soil and the growth season have very much to do with the matter of fighting a particular weed. Quack-grass might be easily killed out on dry sandy soils by cultivation, but ordinary methods of cultivation on a heavy poorly drained soil would only distribute the plant over large areas.

I shall not in this article attempt to explain how to destroy each one of the different kinds of weeds. I wish, only to emphasize that each kind must be studied and the method used for its control devised to fit the conditions.

The chief methods of fighting or controlling weeds are named as follows:

1. **Clean** the seed grain; that is, cease sowing more weed seeds on the land.

2. **Cut** all annual weeds or pull them before seed is produced. If the seed is reasonably well formed then the trash must be raked and burned, or composted.

3. **Burning Stubble.** This is only recommended in certain cases, namely, where the seeds have been allowed to ripen. It is not very effective after the seeds have matured, but is quite effective for such weeds as Pigeon-grass when the weeds and the grass are dead and but slightly disturbed.

4. **Compost the Manure.** Manure from strawy rubbish collected about stables should not be spread on the land before it is thoroly subjected to fermentation in a compost heap. The manure spreader as now generally used direct from the stables, is a very effective way of filling the land with all sorts of weed seeds.

5. **Cultivation.** This is the reliable and essential way of controlling weeds. If the cultivation is of the right type and done at the proper time the following crop will almost invariably pay for all the work of cultivation, regardless of the destruction of the weeds. This cultivation should be done after making a thoro consideration of the kind of weed that is to be attacked and the kind of soil upon which the work is to be done. If the weed is of a nature similar to Quack-grass the cultivation must be of such

nature and so long continued that no leaves are allowed to grow green at any time until final starvation of the underground roots and stems results. If it is an annual of the nature of mustard or wild oats the cultivation must be done at such time and in such manner as to cause the seeds to germinate, and sufficiently often to give those which have a resting period a chance to germinate. The cultivation should go just deep enough each time to stir only those seeds which you wish to germinate. This is determined for a particular soil by the depth at which the particular sort of weed seed will sprout. After cultivating in a shallow manner all summer it is foolish to plow deep in the fall for the plow will turn up a lot of unsprouted seeds to befoul the crop sowed in the spring. The ground should not be stirred any deeper than it was first planned. The spring crop of wheat or other grain should be sown immediately upon this cultivated land. The cultivation can as well be done while a crop, such as corn, is growing, as in a bare summer fallow, provided all scattering weeds and those which grow in the hills of corn are pulled, otherwise a few such scattering weeds well cultivated will raise an abundance of seed. It must be remembered that on the following year when the regular plowing is again done a new lot of weed seeds will be turned up and the work must be done over again.

6. **Smothering Weeds in Small Patches.** This may be accomplished either by the use of tar paper laid down by dirt or pins, or by the use of large quantities of strawy manure or straight straw. People usually fail in this work because they forget to notice that there are many scattering plants around the margins of the plot which they are trying to smother out. These should all be pulled or dug, for even tho the smothering work may be a success the weeds outside may undo the work. In the case of attempting to smother Canada-thistle, Quack-grass, etc., the plants should be cut just before maturing seed and the paper pinned down tightly, or the straw piled on so tightly that no other plants can grow up thru. If the paper is put on in early July and not removed until October the plants will be dead under it. The straw or manure piles should remain for two years undisturbed. From time to time it may be well to visit the straw piles and cover up any plants which seem to be able to come thru.

The smothering process simply allows the underground roots and stems to exhaust themselves attempting to raise leaves to reach the light. It can

only be successfully accomplished where it is continued long enough to allow the starvation to occur. Hoeing or cultivation amounts to essentially the same thing. The underground stems and roots are smothered for the lack of air which comes to them thru the leaves. If the leaves are cut off close to the ground so that no green is allowed to come to the sunlight and air, the underground roots and stems soon lose their vitality and begin to decay.

The Use of Smothering Crops.

When land becomes thoroly filled with weed seeds of some particular type it is well to consider the advisability of putting on a crop in such manner as to smother out the weeds, or at least greatly retard their ability to produce seeds. Crops used in this manner will vary slightly, according to the kind of weed and the nature of the ground. For example, if North Dakota were growing hemp it would be very easy to smother out most weeds with this crop. As it is, many farmers make use of millet or peas for a smothering crop, and either one is excellent when properly handled. Usually the ground should be plowed as early as possible in the fall and harrowed down so as to get it thoroly compact and have as many weed seeds germinated as possible in the fall. This especially applies to mustard and wild oats. The ground is then in the spring harrowed deep enough to keep the ground bare from weeds until late in the spring, as late as the fifteenth or twentieth of May. One should then sow millet considerably thicker than they would ordinarily. It will then come on with a great rush and smother out any ordinary type of weed. If some weeds

FREE BOOK TO LANDOWNERS



Here's a free book for landowners that will save hours of time in figuring the regular business problems that come up every day on the farm—hours that are often wasted in securing satisfactory results of sales, etc. Ropp's Calculator will give the answer you want almost as quickly as you can tell time by your watch. The Keystone Steel & Wire Co., 6029, Industrial St., Peoria, Ills., are sending this great little book free to landowners to help advertise their SQUARE DEAL FENCING. Landowners interested in better fencing should write for the Ropp Calculator and get the SQUARE DEAL FENCE book which explains the method of construction and tells about its special advantages.

do force their way up thru, the millet can be cut early for hay purposes and the ground will thus receive a few weed seeds from that year's crop of weeds. If this crop is followed by a crop of winter rye there are few weeds that can stand the punishment; even Quack-grass is subdued if the cultivation from the time plowing is done until the first of May is sufficiently thoro to keep it from growing green.

A crop of field peas will do the work almost as well and gives a large return in hog forage. If on the same sort of prepared ground barley is seeded about the tenth or fifteenth of May, in most cases it will ripen a good crop in time to prevent the seeding of wild oats. Usually the wild oats which are formed can be taken off with the barley crop. It must be remembered, however, that many people sow a large percentage of wild oats in each sample of barley that they sow. They should be circumspect on this point.

Fodder corn that is used as a sowed crop on strong lands that are subject to large weeds, such as Kinghead, Red River Weed, etc., will be found a very satisfactory crop for smothering such weeds. Of course, one must have a large herd of stock to make use of very large acreages of fodder corn. In this case I would recommend sowing it broadcast but the ground must be so well prepared previously that the weeds do not get a start until the corn is well along.

A mixture of brome grass and alfalfa on the heavy lands of the Red River Valley seems to be about as fine a crop for fighting weeds, suppressing Quack-grass, and Wild Barley, as any that we have seen. Even a straight crop of alfalfa gives weeds a very poor chance of making much growth. The alfalfa ripens the first hay crop so early that not even Quack-grass can produce seed, and a second and even a third cutting helps and by the third or fourth year it is so thoroly in possession of the land that Quack-grass is practically driven out provided the ground was thoroly seeded to alfalfa when the Quack-grass was under reasonable subjection by cultivation, which should be done in the preparing of the seed bed for the alfalfa.

7. Control by Spraying. The Botanical Department of the Agricultural College was the originator of field spraying with the view of destroying weeds in grain fields without injuring the grain. Strange as it may seem this can be done, but we have never advocated waiting until the weeds nearly matured their seed and the grain is nearly ready to head



Motor Boating with a Rowboat

Any rowboat, a rented one if you wish, can be turned into a motor boat if you have an



Speed eight miles an hour and the propeller is weedless. It attaches to and detaches from any rowboat in less than one minute. The motor weighs but fifty pounds and you can carry it like a satchel wherever you go. It is

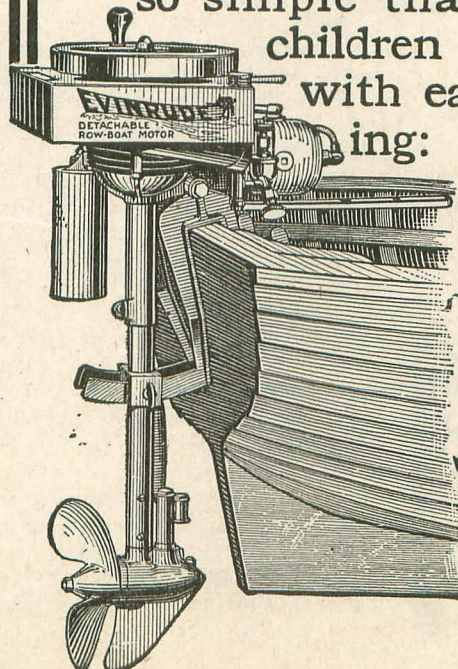
so simple that women and children can operate it with ease. No crank-

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out before this spraying is undertaken. One should spray when the stems of mustard, or other herbaceous weeds, are essentially as soft as the leaves, and then the work will be a success. It is hard to tell just when to spray because every farm gives different conditions. The man who intends to spray should study his conditions and when the weeds are just nicely getting started to grow and when the wheat or other grain is just ready to take charge of the ground, then is the time to spray.

Different kinds of chemicals are used for different weeds on the different crops. Iron sulfate is most commonly used and should be used at the rate of 100 pounds to each 50 or 60 gallons of water, and this amount of solution should be thrown upon approximately an acre. Naturally if the weeds and grain are very large that amount of solution would not do the work. If it is made too strong it will hurt the grain. This explains why a great many people have failed. Copper sulfate used at the rate of 12 to 14 pounds to each 50 gallons of water will do the killing as well for most weeds. Common salt used at the rate of 60 to 70 pounds per barrel of water is a splendid solution for destroying Kinghead, provided the weeds are young and succulent and there is bright sunshine and dry air at the time of spraying. It is also quite satisfactory in controlling Canada-thistle, thru preventing the production of seed. Sodium arsenite used in a hand sprayer upon clumps of Canada-thistle is a most satisfactory weed destroyer. It is quite probable that the farmers will learn to use this spray generally over the fields, but at the present time we are recommending its use only in the hand sprayers or if in the field sprayers upon areas where there is little or no grain, mostly weeds. It is a sure killer for all annual weeds, and gives Canada-thistles the worst punishment of any treatment of which we know.

To summarize: The best way of controlling weeds is:

- (1) To cease sowing the seeds.
- (2) To cause those which are already in the ground to germinate.

(3) To so prepare the ground and plant crops that the crops themselves may smother out the weeds, and that this may be well done, as strong seed grain should be sowed as possible.

(4) Where herbaceous weeds, such as mustard, have completely infested the ground to such an extent that an ordinary crop would do but little with them, the ground should be put into the best possible condition and seeded to a good quality of wheat. Under this condition field spraying can be brought into play.

(5) Wherever possible put on cultivation crops such as corn. This allows one to raise a crop and at the same time sprout and kill the weed seeds. In this connection it is to be remembered that a few well cultivated weeds can produce more seed than those which grow ordinarily under nature's law.

(6) Look out for wind and water borne seeds.

(7) Keep wet areas well drained.

(8) Keep down the weedy growths on roadsides and in waste places.

(9) Keep everlastingly at it.

HUMUS—CONSERVATION

By O. C. Gregg

OCTOBER—EIGHTH YEAR

Possibly some of our readers may think that this matter of humus in the soil is an agricultural fad with me. This is not so. It is one of those things that are very important, but so everyday and commonplace that it is very sure to be neglected. Just a little thought will make the matter so plain as to its absolute necessity in good soil cultivation, that it won't be so readily overlooked. We must study nature's ways. Her ways are always marked out by a wisdom which does not err. The forest continually adds to the soil that produces it, the yearly return of leaves and from time to time its broken limbs and finally the old tree itself. Forest lands have an abundance of humus; Prairie lands have much less. The yearly burning destroys what would be humus from the yearly growth of grass, and the only source of vegetable decay must come from decaying roots. When we as farmers begin to control the growth from and return to the soil—if we follow cropping and no manuring we do contrary to the method of nature and each year the growing crop takes off humus and each year the humus goes back to the earth as it was—and no addition is made.

After a time the original stock of humus is gone; the land has a dead

look; it doesn't resist drouth as it once did and it washes more readily from rains. The yield of crop grows less and less until it won't pay for labor expended. There is fertility in the soil yet but it won't give it up. It will hold it back until some one with intelligence restores that element of humus and then the soil will again "smile with an abundant harvest." Now I don't say that humus is all that is needed to make a soil a good yielder of a crop, but I do say that it must be in the soil as one essential element. We all can put humus in our soils. The best of all methods is to grow clover. Feed clover and get out the manure. Use manure as a topdressing on clover, and let clover grow on the ground where its roots will make vegetable decay without any charge for handling. One of the best of farmers said to me one day, "I would not live in a country and work a farm unless I could grow clover."

I think the man was right, with the understanding that clover means any one of the legumes. I once heard an agricultural teacher say that he thought that too much was being said about humus in the soil. I cannot agree with him as long as so many fields suffer from the lack of it. But as we have now stated, it is not everything, but it is a "big thing" in any agricultural system.

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To supply the demand for reliable and authentic information on California and these two Expositions, we have published two guide books; one on San Francisco, the Exposition and Northern California; the other on Los Angeles, San Diego, the Exposition and Southern California, also a lithographed view of San Francisco in colors (size 30x45 inches) a picture of the rebuilt city, including the Exposition. Each book is 6x9 inches, contains 150 pages and beautiful illustrations.

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WESTLAND EDUCATOR, Lisbon N. D.

ONE DAY'S WORK ON A COUNTRY SCHOOLHOUSE

It took just one working day of eight hours to transform a Tennessee rural schoolhouse that was in very bad condition into a building of which any community would be proud. What was accomplished in this instance by community co-operation could be carried out effectively by any county superintendent, teacher, or school improvement association.

This unique and practical demonstration in public-school improvement was engineered by Prof. D. Riley Haworth, of the East Tennessee State Normal School. Prof. Haworth first secured the co-operation of the county board of education of McMinn County, in which the demonstration was carried out. He also secured the co-operation of the public school-teachers of the county and of the patrons of the Neil school, the plan being to show what any neighborhood can do in one day by united action in the improvement of school buildings and grounds.

A band of teachers, school patrons, and normal-school students, marched out to the Neil School early in the morning to begin operations. An official photographer was taken along; he made photographs of the school grounds, the building, and interior at 8 a. m. before work began, and again at 4 p. m. when the day's work was completed. The "Before" and "After" pictures made it look as if a miracle had taken place.

The building at 8 a. m. was in as disreputable a condition as it could be and still be used for school purposes. The workers were armed with shovels, hoes, axes, carpenters' tools, paint, whitewash, and soap. They nailed on new boards where they were needed, painted the building, built a chimney, cleaned up the rubbish, scrubbed the floor, renovated the entire interior, constructed a bookcase for the teacher, tinted the walls a pearl-gray color, and hung pictures. The old desks were removed and new desks, supplied by the school district, were placed in the building.

The outlay aggregated, in cash, \$33. It included 12 gallons of paint, 5 gallons of linseed oil, 4 paint brushes, one-half bushel of whitewash, \$2 worth of weather boarding and lathing, 2 pounds of nails, 4 window shades, material for sash curtains, 4 pictures, a number of books to start a school library, and one American flag. When the work was completed the building presented as attractive an appearance as the best one-room country schools,

One of the most delightful features of the day was the social enjoyment that resulted from the gathering together of such a large group of workers. At noon a picnic dinner was served by people in the neighborhood of the school. It is planned to repeat the demonstration in many other parts of the state.

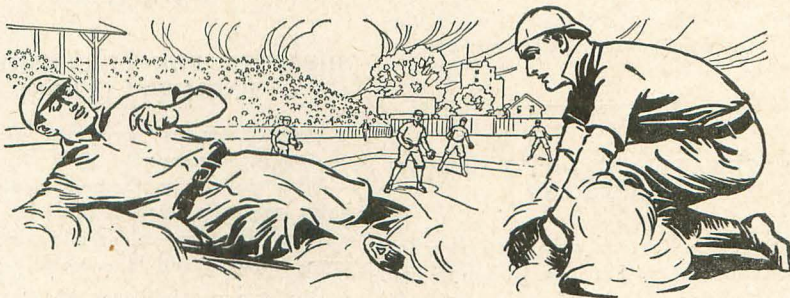
Institute for Teachers, Farmers, and Patrons

Thos. M. Sattler, commissioner of schools for Jackson County, Mich., has been holding a series of interesting institutes during the last season for teachers, farmers, and patrons. At each institute sessions were held in the morning, afternoon, and evening, one day only being given to each town. The program began at 10:30 a. m. with a talk on farm management and economy by an expert agriculturist, followed by a reading or music by local talent. After dinner a program was given consisting of another talk on agriculture and one or two on edu-

cation. In the evening a program consisting of music and reading supplemented two lectures, one on agriculture and one on education. All of these meetings were attended by patrons and the public school-teachers. One of the most enjoyable features of the program was the dinner and supper in which everybody joined, and at which everybody became acquainted with those present and talked over farm and school topics. These institutes have succeeded in awakening greatly increased interest in education on the part of school patrons; they have also opened the eyes of the teachers to the work done in the home toward the education of the child.

TO MAKE A SOIL SURVEY OF DICKEY COUNTY, N. D.

The U. S. Department of Agriculture will send a representative of the Bureau of Soils to make a complete

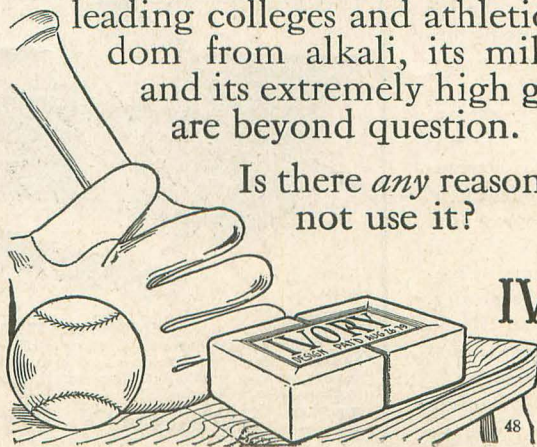


THE bath which follows strenuous exercise is the most thorough test of any soap. Then the pores are wide open and the skin is sore and chafed from perspiration.

If the soap contains "free" alkali or strong ingredients of any kind it cannot help but smart, burn and irritate. Nothing but pure, high grade soap can give satisfaction at such a time.

Ivory Soap has been in general use for years at the leading colleges and athletic clubs. Its freedom from alkali, its mildness, its purity and its extremely high grade of materials are beyond question.

Is there *any* reason why *you* should not use it?



IVORY SOAP
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soil survey of Dickey County, North Dakota, in co-operation with a representative of the state. The party it is expected will take several months to complete the examination and mapping of the soils of the county.

The Department requests co-operation on the part of farmers and land owners with the Federal and State soil surveyors. They should be given facilities to make borings and sample the different soils. They will be provided with credentials which will be shown upon request.

As soon as they have completed their investigations, they will make a large map showing the various kinds of soils and their location by means of colors and shading. This map will also give the location of the principal roads, schools, churches, railroads and water courses.

Accompanying the map will be a complete report on the nature of the soils, their suitability for growing various crops, and suggestions for their improvement by fertilizers, cover crops and crop rotations. This report and the map will not be ready for circulation for some months after completion of the survey.

INTERNATIONAL DRY-FARMING CONGRESS

Every indication points to the International Dry Farming Congress and Soil Products Exposition, to be held in Wichita, Kanass, October 7-17 being the largest and most comprehensive agricultural and industrial exhibition ever held in the Southwest. The United States Government has appropriated \$20,000 for an exhibit covering every important phase of agricultural work and life including a collection of grains and grasses grown in sub-humid territories and all other agricultural products suited to those regions; illustrations of the most improved methods of recording conditions; demonstrating the amount of evaporation from time to time and adapting of land to agriculture; Good Roads bureau, importance of good roads; Forest bureau, prevention of soil erosion; Bureau of soils, weather bureau, Bureau of chemistry and other bureaus will also have displays. The various State Departments and Colleges of Agriculture will also be represented with exhibits of the resources of their lands. Horticulture, Dairy and Livestock, Motor Car and Accessories, Grain Products and Harvest Home Exhibits are other features contributing towards an epoch-making event.

Both national and local manufacturers in every line of industry have engaged space for large displays of

their products. Some of these exhibits will show by "movies," complete processes of manufacture. A 16-acre tract of land will be occupied by exhibits of agricultural machinery manufacturers with actual demonstrations. Many of the leading railroads will also have comprehensive displays, in a special building.

The Exposition will be opened on receipt of a wireless telegram from President Wilson. Gorgeous decorations and electrical illuminations are being installed. Daily parades of all descriptions will take place during the period of the Exposition. Five bands of international reputation, including the Kiltie's have been engaged, together with ten other Kansas bands. A strong amusement program has been arranged. Barnes' European Hippodrome, featuring many acts shown for the first time, will be the leading free attraction. On the "Cowpath" will be seen "The World at Home" a production showing the various wonders of the world in actual portrayal.

SUBJECTS FOR DISCUSSION AT FARMERS' CLUBS

Do housewives favor the teaching of domestic science?

Why do many farmers neglect to paint their buildings?

Why do farmers permit weeds to grow in roads and fence row?

Do farmers make use of the parcel post service?

Is it a disgrace to keep a scrub animal on the farm?

Does the housewife use labor-saving devices as much as the farmer?

What is the strongest influence that keeps boys on the farm?

Should the school house be made a meeting place for the community at least one a month?

10 DAYS TRIAL FREE Without a Penny Down

Your simple word that you'd like to try this "Torrington Regent" brings it by first Parcel Post. This ROLLER BEARING, triple suction combination sweeper and vacuum cleaner gets the fine trodden-in dirty dirt that a broom can't touch. Brush is adjustable to varying length nap carpets or can be removed at a finger touch and machine operated as straight vac. Beautiful mahogany finish, with heavily nickel-plated trimmings. Guaranteed for 5 years:

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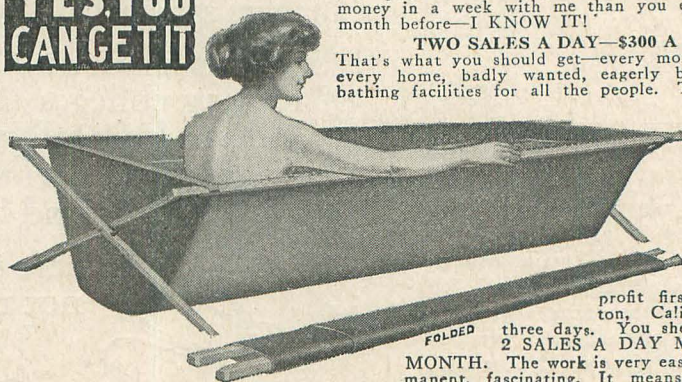
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That's the money you should get this year. I mean it. I want County Sales Managers quick, men or women who believe in the square deal, who will go into partnership with me. No experience needed. My folding Bath Tub has taken the country by storm. Solves the bathing problem. No plumbing, no water works required. Full length bath in any room. Folds in small roll, handy as an umbrella. I tell you it's great! GREAT! Rivals \$100 bath room. Now listen! I want YOU to handle your county. I'll furnish demonstrating tub on liberal plan. I'm positive—absolutely certain—you can get bigger money in a week with me than you ever made in a month before—I KNOW IT!

TWO SALES A DAY—\$300 A MONTH

That's what you should get—every month. Needed in every home, badly wanted, eagerly bought. Modern bathing facilities for all the people. Take the orders right and left. Quick sales, immense profits. Look at these men: Smith Ohio, got 18 orders first week; Meyers, Wis., \$250 profit first month; Newton, California, \$60 in three days. You should do as well.

2 SALES A DAY MEANS \$300 A MONTH. The work is very easy, pleasant, permanent, fascinating. It means a business of your own.



DEMONSTRATING TUB FURNISHED

Little capital needed. I grant credit—Help you out—Back you up—Don't doubt—Don't hesitate—Don't hold back—You cannot lose. My other men are building houses, bank accounts, so can you. Act then quick, SEND NO MONEY. Just name on penny post card for free offer. Hustle!

H. S. ROBINSON, President,

942 Factories Bldg.
Toledo, Ohio

Seasonable Receipts

Edited by Mrs. Sadie Baird.

Fried Toast

Beat three eggs, add one pint milk and a little salt. Dip slices of bread in mixture and fry in hot lard, or lard and butter. When brown place on platter and sprinkle with sugar. Mashed stewed apples or marmalade of any kind spread on instead of sugar is good.

Apple Fritters

Two eggs, one cupful milk, one full cup peeled and chopped apples, one heaping cupful flour, pinch of salt, two teaspoonfuls baking-powder. Fry in hot lard.

Caramel Filling

Boil for five minutes one and one-half cupfuls brown sugar, three-fourths cupful sweet, cream and one teaspoonful of butter. Beat till cool, add one-half cupful of chopped walnuts and spread on cake while warm.

Boiled Frosting

Boil one cupful of sugar with one-half cupful of water until it threads; add the whites of two eggs beaten stiff; beat until light and spread over the cake while warm.

Fruit Cookies

One and one-half cupfuls sugar, one cupful butter, three eggs well beaten, one-half cupful molasses, one teaspoonful soda dissolved in a little cold water, one cupful raisins (chopped), one cupful currants, one teaspoonful cinnamon, one teaspoonful cloves, one teaspoonful nutmeg; flour to roll. Bake slowly.

Sweet Pickles

Prepare syrup, one quart vinegar, three pounds white sugar; five pounds fruit, peaches, pears or crabapples. While syrup is cooking, put in a small bag of spices, cloves, cinnamon and allspice. Peaches and pears; cook in syrup until they can be pierced with silver fork. Crabapples or sweet apples must be steamed until partially done, then drop in syrup until soft. Place fruit in glass jars; pour syrup over boiling hot. Seal at once.

Relish

Two quarts chopped green tomatoes, one quart chopped white onion, one head cauliflower chopped and 6 green peppers chopped. Pour over it all four quarts water and one pint salt. Let stand over night. Scald in the pickle, then drain in collander. Mix one cupful sifted flour, six tablespoonfuls ground mustard, one cupful sugar, one tablespoonful turmeric powder,

mixed in cold vinegar to make a paste. Add it to two quarts scalding vinegar. Stir all together and cook five minutes. Bottle when cold.

Chili Sauce

One and one-half dozen ripe tomatoes, four onions, four small red peppers, three tablespoonfuls salt (scant), three tablespoonfuls sugar, three teaspoonfuls ginger, three teaspoonfuls cinnamon, three teaspoonfuls nutmeg, two teaspoonfuls cloves; chop onions and peppers fine. Slice tomatoes. Add one quart vinegar and cook until thick.

French Pickles

One peck green tomatoes sliced, six large onions sliced; mix these and throw over them one teacupful of salt and let them stand over night; next day drain thoroly and boil in one quart vinegar mixed with two quarts water for fifteen or twenty minutes. Then take four quarts vinegar, two pounds brown sugar, one-half pound white mustard seed, two tablespoonfuls ground allspice and the same of cinnamon, cloves, ginger and ground mustard; throw all together and boil five minutes.

Pepper Mash

One large cabbage, one-half dozen green peppers, one-half dozen onions, one-half cup salt, two tablespoonfuls of mustard seed, one tablespoonful of celery seed, two cups white sugar, one quart vinegar. Cabbage, peppers, onions chopped fine; let stand over night. Next morning drain off water; add sugar, seeds and vinegar, and place in jars. If you have fresh celery, chop with cabbage; it flavors nicely. Will keep all winter.

Spiced Plum

Ten pounds blue plums, eight pounds sugar (brown) one pint vinegar, one tablespoon each cloves and cinnamon. Boil all together to the consistency of jam.

FROM OUR EXCHANGES

Mats from Hot Water-bottles

Rubber hot water-bottles that are past repair make excellent mats to place under flower-pots, which are liable to dampen a varnished surface. Mats may be cut from sides of the water-bottle.

Home-made Dustless Mop

Take an old, worn-out broom, and about one dozen old stocking-legs.

Cut each leg lengthwise into halves, and bind with cord on the stick of the broom just above the bristles. Use the upper part of one of the stockings to cover the binding. When they are securely fastened on, immerse in a cupful of kerosene oil. Then the mop will be ready to remove all the dust from the floors and woodwork.

Home-made Cement

A good cement for cracks in stoves is made by mixing half a cupful of fine salt and a cupful of ashes to a thick paste with soap-suds. Place this in the crack, and after it dries, black the stove carefully.

To Clean Linoleum

When mopping your linoleum add one-half cupful of buttermilk to each gallon of hot water, using no soap. Then take a large dry cloth, slightly moistened with kerosene, and rub dry. The floor will be perfectly clean, and will appear much brighter than when washed in the ordinary way.

To Renew Rancid Butter

When butter becomes old enough to have a strong taste, cut it into two or three pieces and let stand in fresh, sweet milk for six to eight hours. Then remove and rinse in clear water. It will be as fresh as if just churned.

To Remove Stains from Glass

A piece of flannel dampened with spirits of camphor will remove stains from mirrors and window-glass.

When the Oven Burns

If your oven is inclined to burn on the bottom, a piece of wire door-screen cut to fit it exactly will insure one against further annoyance.

BAKER'S COCOA Is Good Cocoa



Of fine quality, made from carefully selected high-grade cocoa beans, skilfully blended, prepared by a perfect mechanical process, without the use of

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Precious Metals Ground in Linseed Oil

THAT'S what Horse Shoe Brand House Paint is: every gallon of it is strictly pure lead and zinc ground in strictly pure linseed oil.

It's a fact; and when your house puts on a coat of Mound City House Paint it fronts the world, so to speak, in cream, or gray, or tan, or white armor plate.

Strictly pure zinc makes up what lead lacks: strengthens where lead is weak—is harder—whiter—more clear—and beautiful.

White lead is just what its name implies, metal—soft metal, of great covering power.

Strictly pure linseed oil is the liquid that binds these natural partners together.

Zinc takes more oil to the pound than lead, and, because "oil is the life of paint" lead plus zinc makes the best paint known.

Base metals are sometimes used in paints, but their value is unproved—and unless you are willing to lend your two or three-thousand-dollar house as a subject for experiment—better keep on the safe side and buy Mound City Horse Shoe Brand House Paint, which is made of really precious metals, in right proportions, and rightly ground in pure aged linseed oil.

Mound City Paint & Color Co.

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